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EXAMINER

SEFER, AHMED N

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

CH

Office Action Summary

Application No.

09/883,007

Applicant(s)

JIANG ET AL.

Examiner

A. Sefer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I in Paper No. 7 is acknowledged; and claims 38-41 have been cancelled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5 and 7-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Kulkarni USPN 5,731,859.

Kulkarni discloses in figs. 2 and 3 a cholesteric liquid crystal polarizing device comprising: a substrate or glass (as in claim 11); an alignment layer 34 or polyimide (as in claim 12); and a cholesteric liquid crystal layer 40 including multiple domains 37 skewed at distribution angles (as in claim 4) and including a plurality of sub-domains, said sub-domains being disposed within a distribution of angles relative to said at least one domain (as in claim 3) and, each of said domains skewed at an angle relative to a plane parallel to said substrate or skewed at a substantially uniform angle (as in claim 2).

Kulkarni '859 (see fig. 3 and col. 5, lines 29-35) reads on claim 5.

As to claim 13, Kulkarni discloses (see col. 1, lines 6-10 and 27-34) an LCD including the CLC polarizing device.

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As to claims 7 and 8, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claims 9 and 10 refer to a method of production and "product by process" claims are directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685 and In re Thorpe, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kulkarni USPN 5,731,859 in view of Ma USPN 5,796,454.

Kulkarni discloses the device structure as recited in the claim, but does not specifically disclose pixel regions.

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Ma discloses (see figs. 5 and 7 and col. 4, lines 30-34 and col. 9, lines 59-67, col. 10, lines 1-13 and abstract) a cholesteric LCD comprising monochromatic device (as in claim 14) wherein pixel regions are arranged in a repeating array of red pixels, green pixels and blue pixels, said red pixels reflecting circularly polarized red light, said green pixels reflecting circularly polarized green light and said blue pixels reflecting circularly polarized blue light.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Ma's teachings with Kulkarni's device since that would increase the contrast ratio of the LCD as taught by Ma.

6. Claims 15-18 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willet et al. USPN 5,325,218 in view Kulkarni USPN 5,731,859.

Willet et al disclose in fig. 2 a reflective liquid crystal display comprising: a planar cholesteric liquid crystal polarizing device; a liquid crystal cell 20; and an internal quarter-wave retarder 30; said cholesteric liquid crystal polarizing device, said liquid crystal cell, and said quarter wave retarder being superposed with one another, but omits a cholesteric liquid crystal polarizing device, including multiple domains, each of said domains skewed at an angle relative to a plane parallel to the cholesteric LCD.

Kulkarni discloses in figs. 2 and 3 a cholesteric liquid crystal polarizing device including multiple domains skewed at a substantially uniform angle (as in claim 16) or skewed at distribution angles (as in claim 18) and including a plurality of sub-domains, said sub-domains being disposed within a distribution of angles relative to said at least one domain (as in claim 17), each of said domains skewed at an angle relative to a plane parallel to the cholesteric LCD.

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Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Kulkarni's teachings with the device of Willet et al since that would provide a high efficiency device as taught by Kulkarni.

As to claims 25 and 26, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Claim 27 refers to a method of production and "product by process" claims are directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685 and In re Thorpe, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

7. Claims 19-23, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over in Willet et al in view of Kulkarni as applied to claim 15 above, and further in view of Ma USPN 5,796,454.

The combined references disclose the device structure as recited in the claim, but do not specifically disclose pixel regions.

Ma discloses (see figs. 5 and 7 and col. 4, lines 30-34 and col. 9, lines 59-67, col. 10, lines 1-13 and abstract) a cholesteric LCD, wherein pixel regions are arranged in a repeating array of red pixels, green pixels and blue pixels, said red pixels reflecting circularly polarized red

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light, said green pixels reflecting circularly polarized green light and said blue pixels reflecting circularly polarized blue light.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Ma's teachings with the device of Willet et al and Kulkarni since that would increase the contrast ratio of the LCD as taught by Ma.

As for claims 19 and 20, Ma discloses (see fig. 6 and col. 10 14-62) a normally white and a normally black mode device.

Ma's reference (see fig. 3 and col. 4, lines 21-29) reads into claims 21 and 22.

As for claims 28 and 29, Ma discloses (see fig. 2 and claim 14) a cell 210 comprising a twisted agent (as in claim 28) and a polarizer and absorbing medium 260 (as in claim 29).

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over in Willet et al in view of Kulkarni as applied to claim 15 above, and further in view of Okumura et al. USPN 5,796,447.

The combined references disclose the device structure as recited in the claim, but do not specifically disclose a cholesteric liquid crystal comprising a plurality of pixel regions, which are in registration with a plurality of pixel regions of a TFT array.

Okumura et al disclose in figs. 1, 8 and 12 a cholesteric liquid crystal display including a TFT array having a plurality of pixel regions; and said plurality of pixel regions of said TFT array are in registration with said plurality of pixel regions of said cholesteric liquid crystal device.

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Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings Okumura et al since that would prevent a degradation in display image quality.

9. Claims 30, 31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willet et al. USPN 5,325,218 in view Kulkarni USPN 5,731,859 and Ma USPN 5,796,454.

Willet et al disclose in fig. 2 a reflective liquid crystal display comprising: a planar cholesteric liquid crystal polarizing device; a liquid crystal cell 20; and an internal quarter-wave retarder 30; said cholesteric liquid crystal polarizing device, said liquid crystal cell, and said quarter wave retarder being superposed with one another, but omits a cholesteric liquid crystal polarizing device, including multiple domains, each of said domains skewed at an angle relative to a plane parallel to the cholesteric LCD and an absorbing medium.

Kulkarni discloses in figs. 2 and 3 a cholesteric liquid crystal polarizing device including multiple domains skewed at an angle relative to a plane parallel to the cholesteric LCD.

Ma discloses (see fig. 2 and claim 14) a cholesteric device comprising a liquid crystal cell 210 comprising a twisted agent (as in claim 33) and an absorbing medium 260.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Kulkarni's teachings with the device of Willet et al since that would provide a high efficiency device as taught by Kulkarni. It would have been obvious to employ an absorbing medium, since that would reduce a heat build-up.

Kulkarni '859 (see fig. 3 and col. 5, lines 29-35) reads on claim 31.

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10. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over in Willet et al in view of Kulkarni and Ma as applied to claim 30 above, and further in view of Okumura et al. USPN 5,796,447.

The combined references disclose the device structure as recited in the claim, but do not specifically disclose a cholesteric liquid crystal comprising a plurality of pixel regions, which are in registration with a plurality of pixel regions of a TFT array.

Okumura et al disclose in figs. 1, 8 and 12 a cholesteric liquid crystal display including a TFT array having a plurality of pixel regions; and said plurality of pixel regions of said TFT array are in registration with said plurality of pixel regions of said cholesteric liquid crystal device.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings Okumura et al since that would prevent a degradation in display image quality.

11. Claims 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willet et al. in view Kulkarni and Ma as applied to claim 30 above, and further in view of Van Haaren et al. USPN 5,737,044.

The combined references disclose a cholesteric LCD device structure as recited in the claim including black mode device and white mode device (see Ma fig. 6, col. 6, lines 38-67 and col. 10, lines 14-62), said cholesteric polarizing device reflecting left-hand or right-hand circularly polarized light, but fail to disclose a retarder oriented at 45 degrees.

Van Haaren et al disclose (see col. 7, lines 1-5) a retarder oriented at 45 degrees to a polarization direction.

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Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Van Haaren et al since that would provide a low viewing-angle dependence.


Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Koide et al. USPN disclose a cholesteric liquid crystal comprising a molded polyester, wherein the cholesteric structure is retained, exhibiting a variant cholesteric color.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (703) 605-1227.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601.

ANS
August 10, 2003


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